



SECTION II—CLAIMS

1.-19. (Canceled)

20. (Currently Amended) A process comprising:

providing a die connected to a substrate by a plurality of wires;

encapsulating the wires and ~~at least a portion of the~~ entire die in an electrically insulating material; and

entirely encapsulating the die, the wires and the electrically insulating material in a thermally conductive material, wherein the thermally conductive material is in contact with the entire part of the surface of the electrically insulating material that is not in contact with the substrate, the die or the wires.

21. (Original) The process of claim 20 wherein encapsulating the wires and at least a portion of the die in an electrically insulating material comprises applying the electrically insulating material around a perimeter of the die by dispensing, spraying, screen printing, transfer molding, or injection molding.

22. (Original) The process of claim 21 wherein encapsulating the wires and at least a portion of the die in an electrically insulating material further comprises curing the electrically insulating material using thermal, UV, laser, or microwave curing.

23. (Original) The process of claim 20 wherein encapsulating the die, the wires and the electrically insulating material in a thermally conductive material comprises applying the thermally conductive material on the die, the wires and the electrically insulating material by dispensing, spraying, screen printing, transfer molding, or injection molding.

24. (Original) The process of claim 23 wherein encapsulating the die, the wires and the electrically insulating material in a thermally conductive material further comprises curing the electrically insulating material using thermal, UV, laser, or microwave curing.
25. (Original) The process of claim 20 wherein the thermally conductive material comprises a curable resin, a crosslinker, a catalyst, and a metal filler.
26. (Original) The process of claim 25 wherein the metal filler comprises aluminum, silver, copper, gold, or combinations or alloys thereof.
27. (Original) The process of claim 20 wherein the die comprises an integrated circuit.
28. (Currently Amended) A process comprising:
- providing a stack of dies, the stack including a first die attached by one or more wires to a substrate and at least one additional die stacked thereon;
- encapsulating the one or more wires and at least a portion of the stack of dies in an electrically insulating material; and
- encapsulating the stack of dies, the one or more wires and the electrically insulating material in a thermally conductive material.
29. (Original) The process of claim 28 wherein encapsulating the wires and at least a portion of the stack of dies in an electrically insulating material comprises applying the electrically insulating material around a perimeter of the stack of dies by dispensing, spraying, screen printing, transfer molding, or injection molding.
30. (Original) The process of claim 29 wherein the electrically insulating material is thinly applied to the wires and the perimeter of the stack of dies.

31. (Original) The process of claim 29 wherein encapsulating the wires and at least a portion of the stack of dies in an electrically insulating material further comprises curing the electrically insulating material using thermal, UV, laser, or microwave curing.
32. (Original) The process of claim 28 wherein encapsulating the stack of dies, the wires and the electrically insulating material in a thermally conductive material comprises applying the thermally conductive material on the stack of dies, the wires and the electrically insulating material by dispensing, spraying, screen printing, transfer molding, or injection molding.
33. (Original) The process of claim 32 wherein encapsulating the stack of dies, the wires and the electrically insulating material in a thermally conductive material further comprises curing the electrically insulating material using thermal, UV, laser, or microwave curing.
34. (Original) The process of claim 28 wherein the thermally conductive material comprises a curable resin, a crosslinker, a catalyst, and a metal filler.
35. (Original) The process of claim 28 wherein the metal filler comprises aluminum, silver, copper, gold, or combinations or alloys thereof.
36. (Original) The process of claim 28 wherein the first die is flip-chip bonded to the substrate.
37. (Original) The process of claim 28 wherein at least one of the stacked dies comprises an integrated circuit.